

MMM		MMM	AAAAAAAAAA	CCCCCCCCCCCC	RRRRRRRRRRRR	0000000000		
MMM		MMM	AAAAAAAAAA	CCCCCCCCCCCC	RRRRRRRRRRRR	0000000000		
MMM		MMM	AAAAAAAAAA	CCCCCCCCCCCC	RRRRRRRRRRRR	0000000000		
MMMMMMM	MMMMMMM	AAA	AAA	CCC	RRR	RRR	000	000
MMMMMMM	MMMMMMM	AAA	AAA	CCC	RRR	RRR	000	000
MMMMMMM	MMMMMMM	AAA	AAA	CCC	RRR	RRR	000	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAAAAAAAAAAAAAAA	CCC	RRR	RRR	000	000
MMM	MMM	MMM	AAAAAAAAAAAAAAAA	CCC	RRR	RRR	000	000
MMM	MMM	MMM	AAAAAAAAAAAAAAAA	CCC	RRR	RRR	000	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCC	RRR	RRR	000
MMM	MMM	MMM	AAA	AAA	CCCCCCCCCCCC	RRR	RRR	0000000000
MMM	MMM	MMM	AAA	AAA	CCCCCCCCCCCC	RRR	RRR	0000000000
MMM	MMM	MMM	AAA	AAA	CCCCCCCCCCCC	RRR	RRR	0000000000

```
SSSSSSSS YY YY MM MM TTTTTTTTTT AAAAAA BBBBBBBBBB
SSSSSSSS YY YY MM MM TTTTTTTTTT AAAAAA BBBBBBBBBB
SS      YY YY MM MM TTT TT AA AA BB BB
SS      YY YY MM MM TTT TT AA AA BB BB
SS      YY YY MM MM TTT TT AA AA BB BB
SSSSSS YY YY MM MM TTT TT AA AA BBBBBBBBBB
SSSSSS YY YY MM MM TTT TT AA AA BBBBBBBBBB
SS      YY YY MM MM TTT TT AAAAAAAAAA BB BB
SS      YY YY MM MM TTT TT AAAAAAAAAA BB BB
SS      YY YY MM MM TTT TT AA AA BB BB
SS      YY YY MM MM TTT TT AA AA BB BB
SSSSSS YY YY MM MM TTT TT AA AA BBBBBBBBBB
SSSSSS YY YY MM MM TTT TT AA AA BBBBBBBBBB
.....
```

```
LL      IIIII SSSSSSSS
LL      IIIII SSSSSSSS
LL      II SS
LL      II SS
LL      II SS
LL      II SSSSSS
LL      II SSSSSS
LL      II SS
LL      II SS
LL      II SS
LLLLLLLLL SSSSSSS
LLLLLLLLL SSSSSSS
```


(2)	91	SYM ENTER SYMBOL INTO SYMBOL TABLE
(3)	134	MACRO TO ENTER SYMBOL INTO LINKED LIST FROM HASH TABLE
(4)	175	PERMANENT SYMBOL HASH TABLE
(5)	200	USER SYMBOL HASH TABLE
(6)	213	MACRO NAME HASH TABLE
(7)	227	PERMANENT SYMBOLS
(8)	258	PSECT OPTION TABLE
(9)	325	SPECIAL MACRO DIRECTIVE SYMBOLS
(10)	354	CROSS REFERENCE QUALIFIER VALUE OPTIONS
(11)	379	LIST/NLIST OPTION TABLE
(12)	423	ENABLE/DISABLE OPTIONS
(13)	495	SYMBOLS FOR .DEFAULT DIRECTIVE
(14)	515	OPCODE DEFINITIONS
(23)	987	DIRECTIVES

```
0000 1 .TITLE MACSSYMTAB PERMANENT SYMBOL TABLE
0000 2 .IDENT 'V04-000'
0000 3
0000 4
0000 5 *****
0000 6 *
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0000 24 *
0000 25 *
0000 26 *****
0000 27
0000 28
0000 29 ++
0000 30 FACILITY: VAX MACRO ASSEMBLER OBJECT LIBRARY
0000 31
0000 32 ABSTRACT:
0000 33
0000 34 The VAX-11 MACRO assembler translates MACRO-32 source code into object
0000 35 modules for input to the VAX-11 LINKER.
0000 36
0000 37 ENVIRONMENT: USER MODE
0000 38
0000 39 AUTHOR: Benn Schreiber, CREATION DATE: 20-AUG-78
0000 40
0000 41 MODIFIED BY:
0000 42
0000 43 V03-001 MTR0031 Mike Rhodes 13-Apr-1983
0000 44 Add .LINK directive to the directives symbol list.
0000 45
0000 46 V02.20 MTR0001 Mike Rhodes 09-Nov-1981
0000 47 Add new symbol block for /DEBUG parameter symbols.
0000 48 The functions are the same as combinations of the
0000 49 /Enable and /Disable qualifiers utilizing the DEBUG
0000 50 and TRACEBACK parameters.
0000 51
0000 52 V02.19 PCG0009 Peter George 28-Aug-1981
0000 53 Delete multiple CLRG definition.
0000 54
0000 55 V02.18 CNH0042 Chris Hume 28-Oct-1980
0000 56 De-optimize boundary valued backward references if indexing
0000 57 requested. Allow the architecturally legal immediate mode in
```



```
0000 58 : address and viold contexts and also the practically useless
0000 59 : indexed immediate mode.
0000 60 : (ACTREF.MAR 02.15, ACTSTA.MAR 02.15, DEFINE.MAR 02.17)
0000 61 :
0000 62 : V01.17 RN0014 R. Newland 10-Oct-1979
0000 63 : Support for G_floating, H_floating and Octaword datatypes
0000 64 :
0000 65 : V01.16 RN0013 R. Newland 27-Sep-1979
0000 66 : Add VEC attribute name to PSECT options
0000 67 :
0000 68 : V01.15 RN0005 R. Newland 12-Aug-1979
0000 69 : Variable symbol name storage
0000 70 :
0000 71 : V01.13 RN0004 R. Newland 15-Mar-1979
0000 72 : Insert CLRG, MOVAG and PUSHAG into opcode definitions
0000 73 :
0000 74 : V01.14 RN0006 R. Newland 21-Aug-1979
0000 75 : Insert .REPEAT into table of directives treated
0000 76 : specially within a macro body
0000 77 :
0000 78 : V01.12 RN0001 R. Newland 01-FEB-1979
0000 79 : Insert CVTDH and CVTGF into opcode definitions
0000 80 :
0000 81 :--
0000 82 :
0000 83 $MAC_GENVALDEF ;DEFINE COMMONLY USED SYMBOLS
0000 84 $MAC_SYMBLKDEF ;DEFINE SYMBOL BLOCK OFFSETS
0000 85 $MAC_CTLFLGDEF ;DEFINE FLAG BIT VALUES
0000 86 $MAC_CRFLAGDEF ;DEFINE CROSS REF FLAG BITS
0000 87 $MAC_GRAMMARDEF ;DEFINE VAX-11 MACRO TERMINAL GRAMMAR
0000 88 $MAC_ADRMODDEF ;DEFINE ADDRESSING MODES
0000 89 $MAC_OPRDEF ;DEFINE OPERAND DESCRIPTOR BITS
```

```
0000 91 .SBTTL SYM ENTER SYMBOL INTO SYMBOL TABLE
0000 92
00000000 93 .PSECT MAC$PRMSYMTAB,GBL,NOEXE,NOWRT,LONG
0000 94 .NLIST ME
0000 95 :++
0000 96 SYM -- ENTER SYMBOL INTO SYMBOL TABLE
0000 97
0000 98 THE FOLLOWING MACRO IS USED TO CREATE THE INITIAL SYMBOL TABLE.
0000 99
0000 100 FORMAT IS: SYM SYMBOL_NAME,TOKEN<,VALUE><,SEGMENT><,FLG>
0000 101
0000 102 INPUTS:
0000 103
0000 104 SYMBOL_NAME IS THE SYMSK_MAXLEN-CHARACTER OR LESS NAME
0000 105 TOKEN IS THE TOKEN TO BE ENTERED
0000 106 VALUE IS THE INITIAL VALUE
0000 107 IF NO VALUE IS GIVEN, THE DEFAULT IS 0
0000 108 SEGMENT IS THE SEGMENT TO DEFINE THE SYMBOL IN
0000 109 FLG ARE THE INITIAL FLAGS (DEFAULT IS 0)
0000 110
0000 111 :--
0000 112
0000 113 .MACRO SYM NME, TKN=0, VLE=0, SEG=0, FLG=0
0000 114 .NCHR SYMLN,<'NME> ;DETERMINE SYMBOL LENGTH
0000 115 HASHVL = SYMLN
0000 116 .IRPC HASHCH,<'NME>
0000 117 HASHVL = HASHVL + ^A/HASHCH/ ;HASH THE SYMBOL
0000 118 .ENDR
0000 119
0000 120 HASHVL = HASHVL & HASHSZ ;MASK DOWN TO HASH TABLE SIZE
0000 121
0000 122 .ASCIC /'NME/ ; Counted name string
0000 123
0000 124 ENTERSYM \HASHVL ;ENTER SYMBOL INTO TABLES
0000 125
0000 126 .LONG 0 ;LINK TO NEXT SYMBOL
0000 127 .BYTE SYMLN+1 ; Offset to name
0000 128 .LONG VLE
0000 129 .WORD FLG
0000 130 .BYTE TKN ;TOKEN VALUE
0000 131 .BYTE SEG ;SEGMENT
0000 132 .ENDM SYM
```



```
0000 134      .SBTTL MACRO TO ENTER SYMBOL INTO LINKED LIST FROM HASH TABLE
0000 135
0000 136 :++
0000 137 :      ENTERSYM -- ENTER SYMBOL INTO LINKED LIST FROM HASH TABLE
0000 138 :
0000 139 :      INPUTS:
0000 140 :
0000 141 :      HASHNM HASH VALUE OF SYMBOL
0000 142 :
0000 143 :      OUTPUTS:
0000 144 :
0000 145 :      SYMBOL IS LINKED INTO HASH BUCKET
0000 146 :
0000 147 :--
0000 148
0000 149      .MACRO ENTERSYM          HASHNM
0000 150
0000 151      .PSECT MAC$PRMSYMTAB,GBL,NOEXE,NOWRT,LONG
0000 152
0000 153      HASHPT = .                ;SAVE CURRENT LOCATION
0000 154
0000 155      .IF EQ C$'HASHNM
0000 156      .PSECT MAC$PHASHTAB,GBL,NOEXE,NOWRT,LONG
0000 157      .=MAC$AL PRMHSHTB        ;RELOCATE TO START OF HASH TABLE
0000 158      .=.<HASHNM*4>           ;RELOCATE TO HASH POSITION IN HASH TABLE
0000 159      .LONG HASHPT            ;POINT FROM HASH TABLE TO SYMBOL
0000 160      .IFF
0000 161      .=S$'HASHNM + SYM$LINK    ; Relocate to previous symbol linkage
0000 162      .LONG HASHPT            ;POINT FROM LAST SYMBOL IN CHAIN
0000 163      .=-SYM$LINK              ; Point to base of entry
0000 164      .ENDC
0000 165
0000 166      C$'HASHNM = C$'HASHNM + 1    ;COUNT ENTRIES IN BUCKET
0000 167
0000 168      .PSECT MAC$PRMSYMTAB,GBL,NOEXE,NOWRT,LONG
0000 169      .=HASHPT                  ;RELOCATE BACK TO END OF FREE STORAGE
0000 170      S$'HASHNM = .            ;UPDATE LINKED LIST POINTER
0000 171
0000 172      .ENDM ENTERSYM
0000 173
```

```
0000 175 .SBTTL PERMANENT SYMBOL HASH TABLE
0000 176
0000 177 :
0000 178 : THIS CODE INITIALIZES THE PERMANENT SYMBOL TABLE WHICH CONTAINS
0000 179 : THE NAMES OF ALL DIRECTIVES AND MACHINE INSTRUCTIONS. THIS CODE
0000 180 : ALSO INITIALIZES THE VARIABLES USED BY THE ASSEMBLER TO CONSTRUCT
0000 181 : THE INITIAL HASH TABLE ENTRIES.
0000 182 :
00000000 183 .PSECT MAC$PHASHTAB,GBL,NOEXE,NOWRT,LONG
0000 184
0000 185 MAC$AL_PRMHSHTB:: ;START OF HASH TABLE
0000 186
00000000 0000 187 XXX=0 ; DUMMY COUNTER
0000 188
0000 189 .REPT HASHSZ+1
0000 190 .NLST
0000 191 .IRP XX,\XXX
0000 192 .BLKL 1 ;ALLOCATE HASH ENTRY
0000 193 C$'XX= 0 ;CLEAR HASH INDEX
0000 194 .ENDR
0000 195 XXX=XXX+1 ;MOVE TO NEXT SYMBOL
0000 196 .LIST
0200 198
```



```

0200 200 .SBTTL USER SYMBOL HASH TABLE
0200 201
0200 202 :
0200 203 : THE USER SYMBOL TABLE CONSISTS OF ALL SYMBOLS (EXCEPT MACRO NAMES)
0200 204 : DEFINED BY THE USER. THE CODE BELOW INITIALIZES THIS TABLE TO BE
0200 205 : EMPTY. (IE. EACH OF THE HASH TABLE ENTRIES ARE ZEROED.)
0200 206 :
00000000 207 .PSECT MAC$USERHASHTAB,NOEXE, LONG
0000 208
0000 209 MAC$AL_USYHSHTB:: ;START OF USER HASH TABLE
0000 210
00000200 0000 211 .BLKL HASHSZ+1 ;ALLOCATE HASH TABLE

```

```

0200 213 .SBTTL MACRO NAME HASH TABLE
0200 214
0200 215 :
0200 216 : THE MACRO NAME TABLE CONTAINS THE NAMES OF ALL MACROS DEFINED BY
0200 217 : THE USER. THE CODE BELOW INITIALIZES THIS TABLE TO BE EMPTY.
0200 218 :
0200 219
00000000 220 .PSECT MAC$USRMACROHSH,NOEXE, LONG
0000 221
0000 222 MAC$AL_UMCHSHTB:: ;START OF MACRO NAME HASH TABLE
0000 223
00000200 0000 224 .BLKL HASHSZ+1 ;ALLOCATE HASH TABLE
0200 225

```



```
0200 227 .SBTTL PERMANENT SYMBOLS
0200 228
0200 229 :
0200 230 :
0200 231 : THE PERMANENT SYMBOLS RESIDE IN THE 'MAC$PRMSYMTAB' PSECT.
0200 232 :
0200 233 :
00000000 234 .PSECT MAC$PSECT_TAB,NOEXE, LONG
0000 235
00000000 0000 236 INSYP = 0 ; START OF PSECT LIST
0000 237
2E 20 20 53 42 41 20 20 2E 00' 0000 238 .ASCIC /. ABS ./
09 0000
000A 239 PSECT$MAIN::
00000000 000A 240 .LONG 0 ;LINK
0A 000E 241 .BYTE 9+1 ; Offset to name
00000000 000F 242 .LONG 0 ;MAX LENGTH
0001 0013 243 .WORD SYM$M_DEF ;SYMBOL (PSECT) FLAGS
00 00 0015 244 .BYTE 0,0 ;SEGMENT #0, UNUSED BYTE
0000 0017 245 .WORD 0 ;PSECT OPTIONS
00000000 0019 246 .LONG 0 ;CURRENT LOCATION COUNTER
001D 247
2E 20 4B 4E 41 4C 42 20 2E 00' 001D 248 .ASCIC /. BLANK ./
09 001D
0027 249 PSECT$BLANK::
00000000 0027 250 .LONG 0 ;LINK
0A 002B 251 .BYTE 9+1 ; Offset to name
00000000 002C 252 .LONG 0 ;MAX LENGTH
0001 0030 253 .WORD SYM$M_DEF ;SYMBOL (PSECT) FLAGS
01 00 0032 254 .BYTE 0,1 ;UNUSED, SEGMENT # 1
01C8 0034 255 .WORD PSC$M_DEFAULT ;PSECT DEFAULT OPTIONS
00000000 0036 256 .LONG 0 ;CURRENT LOCATION COUNTER
```

```
003A 258 .SBTTL PSECT OPTION TABLE
003A 259
00000000 260 .PSECT MAC$PSC_OPTIONS,NOEXE,NOWRT,GBL, LONG
0000 261
0000 262 ;
0000 263 ; MASK DEFINITIONS
0000 264 ;
0000 265
FFFF0000 0000 266 MSK_LH = ^XFFFF0000 ;MASK TO GET LH WORD ONLY
0000FFFF 0000 267 MSK_RH = ^XFFFF ;MASK TO GET RH WORD ONLY
00000010 0000 268 SHF_LH = 16 ;SHIFT COUNT TO LH WORD
80000000 0000 269 SIGN_BIT= ^X80000000 ;MASK FOR SIGN BIT
0000 270
00000000 0000 271 INSIMP = 0
0000 272
0000 273 $MAC_INSERT SYX PIC,- ;POSITION INDEPENDENT CODE
0000 274 <<PSC$M_PIC&MSK_RH>+<PSC$M_PIC@SHF_LH>>
000D 275 $MAC_INSERT SYX NOPIC,- ;NON-PIC CODE
000D 276 <<PSC$M_NOPIC&MSK_RH>+<<<PSC$M_NOPIC\SIGN_BIT>@SHF_LH>&MSK_LH>>
001C 277 $MAC_INSERT SYX LIB,- ;UNIVERSAL
001C 278 <<PSC$M_LIB&MSK_RH>+<PSC$M_LIB@SHF_LH>>
0029 279 $MAC_INSERT SYX USR,- ;USER (NOT UNIVERSAL)
0029 280 <<PSC$M_USR&MSK_RH>+<<<PSC$M_USR\SIGN_BIT>@SHF_LH>&MSK_LH>>
0036 281 $MAC_INSERT SYX OVR,- ;OVERLAID
0036 282 <<PSC$M_OVR&MSK_RH>+<PSC$M_OVR@SHF_LH>>
0043 283 $MAC_INSERT SYX CON,- ;CONCATENATED
0043 284 <<PSC$M_CON&MSK_RH>+<<<PSC$M_CON\SIGN_BIT>@SHF_LH>&MSK_LH>>
0050 285 $MAC_INSERT SYX REL,- ;RELOCATABLE
0050 286 <<PSC$M_REL&MSK_RH>+<PSC$M_REL@SHF_LH>>
005D 287 $MAC_INSERT SYX ABS,- ;ABSOLUTE
005D 288 <<PSC$M_ABS&MSK_RH>+<<<PSC$M_ABS\SIGN_BIT>@SHF_LH>&MSK_LH>>
006A 289 $MAC_INSERT SYX GBL,- ;GLOBAL
006A 290 <<PSC$M_GBL&MSK_RH>+<PSC$M_GBL@SHF_LH>>
0077 291 $MAC_INSERT SYX LCL,- ;LOCAL
0077 292 <<PSC$M_LCL&MSK_RH>+<<<PSC$M_LCL\SIGN_BIT>@SHF_LH>&MSK_LH>>
0084 293 $MAC_INSERT SYX SHR,- ;SHAREABLE
0084 294 <<PSC$M_SHR&MSK_RH>+<PSC$M_SHR@SHF_LH>>
0091 295 $MAC_INSERT SYX NOSHR,- ;NON-SHAREABLE
0091 296 <<PSC$M_NOSHR&MSK_RH>+<<<PSC$M_NOSHR\SIGN_BIT>@SHF_LH>&MSK_LH>>
00A0 297 $MAC_INSERT SYX EXE,- ;EXECUTABLE
00A0 298 <<PSC$M_EXE&MSK_RH>+<<PSC$M_EXE\PS$M_RD>@SHF_LH>>
00AD 299 $MAC_INSERT SYX NOEXE,- ;NON-EXECUTABLE
00AD 300 <<PSC$M_NOEXE&MSK_RH>+<<<PSC$M_NOEXE\SIGN_BIT>@SHF_LH>&MSK_LH>>
00BC 301 $MAC_INSERT SYX RD,- ;READABLE
00BC 302 <<PSC$M_RD&MSK_RH>+<PSC$M_RD@SHF_LH>>
00C8 303 $MAC_INSERT SYX NORD,- ;NOT READABLE
00C8 304 <<PSC$M_NORD&MSK_RH>+<<<PSC$M_NORD\SIGN_BIT>@SHF_LH>&MSK_LH>>
00D6 305 $MAC_INSERT SYX WRT,- ;WRITEABLE
00D6 306 <<PSC$M_WRT&MSK_RH>+<<PSC$M_WRT\PS$M_RD>@SHF_LH>>
00E3 307 $MAC_INSERT SYX NOWRT,- ;NOT WRITEABLE
00E3 308 <<PSC$M_NOWRT&MSK_RH>+<<<PSC$M_NOWRT\SIGN_BIT>@SHF_LH>&MSK_LH>>
00F2 309 $MAC_INSERT SYX BYTE,- ;BYTE ALIGNMENT
00F2 310 <<PSC$M_BYTE&MSK_RH>+<PSC$M_BYTE@SHF_LH>>
0100 311 $MAC_INSERT SYX WORD,- ;WORD ALIGNMENT
0100 312 <<PSC$M_WORD&MSK_RH>+<PSC$M_WORD@SHF_LH>>
010E 313 $MAC_INSERT SYX LONG,- ;LONGWORD ALIGNMENT
010E 314 <<PSC$M_LONG&MSK_RH>+<PSC$M_LONG@SHF_LH>>
```


011C	315	\$MAC_INSERT_SYX QUAD -	: QUADWORD ALIGNMENT
011C	316	<<PSCSM_QUAD&MSK_RH>+<PSCSM_QUAD@SHF_LH>>	
012A	317	\$MAC_INSERT_SYX PAGE -	: PAGE ALIGNMENT
012A	318	<<PSCSM_PAGE&MSK_RH>+<PSCSM_PAGE@SHF_LH>>	
0138	319	\$MAC_INSERT_SYX VEC -	
0138	320	<<PSCSM_VEC&MSK_RH>+<PSCSM_VEC@SHF_LH>>	
0145	321	\$MAC_INSERT_SYX NOVEC -	
0145	322	<<PSCSM_NOVEC&MSK_RH>+<<<PSCSM_NOVEC\SIGN_BIT>@SHF_LH>&MSK_LH>>>,-	
0145	323	PSCSG_OPTIONS	

```
0154 325 .SBTTL SPECIAL MACRO DIRECTIVE SYMBOLS
0154 326
0154 327 :
0154 328 : THE FOLLOWING DIRECTIVES ARE TREATED SPECIAL WHEN THEY ARE ENCOUNTERED
0154 329 : WHILE SCANNING A MACRO BODY TO LOAD IT INTO MEMORY. THE ARGUMENT IS
0154 330 : THE NAME OF THE ROUTINE TO CALL.
0154 331 :
0154 332
00000000 333 .PSECT MAC$PRMSYMTAB,GBL,NOEXE,NOWRT,LONG
0000 334
00000000 0000 335 INSYP = 0 ; START OF LIST
0000 336
0000 337 $MAC_INSERT_SYX .ERROR, MAC$SET_ALL_CHR ;.ERROR WITHIN MACRO DEF
0010 338 $MAC_INSERT_SYX .WARN, MAC$SET_ALL_CHR ;.WARN WITHIN MACRO DEF
001F 339 $MAC_INSERT_SYX .PRINT, MAC$SET_ALL_CHR ;.PRINT WITHIN MACRO DEF
002F 340 $MAC_INSERT_SYX .ASCII, MAC$SET_ALL_CHR ;.ASCII WITHIN MACRO DEF
003F 341 $MAC_INSERT_SYX .ASCIZ, MAC$SET_ALL_CHR ;.ASCIZ WITHIN MACRO DEF
004F 342 $MAC_INSERT_SYX .ASCIC, MAC$SET_ALL_CHR ;.ASCIC WITHIN MACRO DEF
005F 343 $MAC_INSERT_SYX .ASCID, MAC$SET_ALL_CHR ;.ASCID WITHIN MACRO DEF
006F 344 $MAC_INSERT_SYX .REPT, MAC$MAC_IN_MAC ;.REPT
007E 345 $MAC_INSERT_SYX .REPEAT, MAC$MAC_IN_MAC ;.REPEAT
008F 346 $MAC_INSERT_SYX .IRP, MAC$MAC_IN_MAC ;.IRP
009D 347 $MAC_INSERT_SYX .IRPC, MAC$MAC_IN_MAC ;.IRPC
00AC 348 $MAC_INSERT_SYX .ENDR, MAC$MAC_DEF_END ;.ENDR
00BB 349 $MAC_INSERT_SYX .END, MAC$MAC_DEF_END ;.END
00C9 350 $MAC_INSERT_SYX .MACRO, MAC$MAC_IN_MAC ;.MACRO
00D9 351 $MAC_INSERT_SYX .ENDM, MAC$MAC_DEF_END, -; .ENDM
00D9 352 MAC$G_SPLMC_DIR
```



```
00E8 354 .SBTTL CROSS REFERENCE QUALIFIER VALUE OPTIONS
00E8 355
00E8 356 :++
00E8 357 : THE /CROSS QUALIFIER WILL TAKE THE FOLLOWING VALUES:
00E8 358 :
00E8 359 : ALL ALL VALUES FOLLOWING
00E8 360 : DIRECTIVES CREF DIRECTIVES
00E8 361 : MACROS MACROS
00E8 362 : OPCODES OPCODES
00E8 363 : REGISTERS REGISTERS
00E8 364 : SYMBOLS SYMBOLS
00E8 365 :
00E8 366 :--
00E8 367
00000000 00E8 368 INSYP = 0
00E8 369
00E8 370 $MAC_INSERT_SYX ALL,-
00E8 371 CRFSM_DIR!CRFSM_MACROS!CRFSM_OPCODES!CRFSM_REGISTERS!CRFSM_SYMBOLS;ALL OF THEM
00F5 372 $MAC_INSERT_SYX DIRECTIVES,CRFSM_DIR;DIRECTIVES
0109 373 $MAC_INSERT_SYX MACROS,CRFSM_MACROS;MACROS
0119 374 $MAC_INSERT_SYX OPCODES,CRFSM_OPCODES;OPCODES
012A 375 $MAC_INSERT_SYX REGISTERS,CRFSM_REGISTERS;REGISTERS
013D 376 $MAC_INSERT_SYX NONE,CRFSM_MACROS!CRFSM_SYMBOLS;/CROSS W/NO VALUES
014B 377 $MAC_INSERT_SYX SYMBOLS,CRFSM_SYMBOLS,MAC$CRF_OPTIONS;SYMBOLS
```

```
015C 379 .SBTTL LIST/NLIST OPTION TABLE
015C 380
00000000 381 .PSECT MAC$ENBDSABLTAB,NOEXE, LONG
0000 382
FFFFFFFF 0000 383 ENABLE = -1
00000000 0000 384 DISABLE = 0
0000 385
0000 386 :
0000 387 : LISTING CONTROL DIRECTIVES. THE VALUE IS THE INITIAL SWITCH SETTING
0000 388 :
0000 389 :
0000 390 : NOTE: THE SYM$B TOKEN FIELD IS USED INTERNALLY TO STORE THE INITIAL
0000 391 : SETTING OF EACH OPTION (TRUE OF ENABLE OPTIONS ALSO). THESE
0000 392 : ARE SET UP IN PASS 1 AND THE SYM$L VAL FIELD IS RESET FROM THE
0000 393 : TOKEN FIELD AT THE BEGINNING OF PASS 2.
0000 394 :
00000000 0000 395 INSYP = 0
0000 396
0000 397 $MAC_INSERT_SYM CND, ENABLE, 1, LST$G_CONDITION ; Conditional code
0011 398 ;
0011 399 $MAC_INSERT_SYM MD, ENABLE, 2, LST$G_MACRODEF ; Macro defintions
0021 400 ;
0021 401 $MAC_INSERT_SYM MC, ENABLE, 4, LST$G_MACROCALL ; Macro calls
0031 402 ;
0031 403 $MAC_INSERT_SYM ME, DISABLE, 8, LST$G_MACROXPAN ; Macro expansions
0041 404 ;
0041 405 $MAC_INSERT_SYM MEB, DISABLE, 16, LST$G_MACROBIN ; Macro binary code
0052 406 ;
00000045 0052 407 LST$G_DIRLIST == LST$G_MACROBIN ;START OF TABLE
0052 408 :
0052 409 : LONG FORMS OF THE LISTING CONTROL DIRECTIVES. THE VALUE CONTAINED
0052 410 : IS A POINTER TO ONE OF THE ABOVE NAME BLOCKS.
0052 411 :
00000000 0052 412 INSYP = 0
0052 413
0052 414 $MAC_INSERT_SYX NONE, 0 ;SPECIAL FOR /SHOW
0060 415 ;WITH NO VALUE
0060 416 $MAC_INSERT_SYX CONDITIONALS, LST$G_CONDITION ;CONDITIONAL CODE
0076 417 $MAC_INSERT_SYX DEFINITIONS, LST$G_MACRODEF ;MACRO DEFINITIONS
008B 418 $MAC_INSERT_SYX CALLS, LST$G_MACROCALL ;MACRO CALLS
009A 419 $MAC_INSERT_SYX EXPANSIONS, LST$G_MACROXPAN ;MACRO EXPANSIONS
00AE 420 $MAC_INSERT_SYX BINARY, LST$G_MACROBIN, - ; Macro expansions
00AE 421 LST$G_LONGNAMES
```



```
.SBTTL ENABLE/DISABLE OPTIONS

00000000 00BE 423      ; ENABLE/DISABLE OPTIONS.  VALUE IS INITIAL SETTING.
00BE 424
00BE 425
00BE 426
00BE 427
00BE 428
00BE 429      INSYMP = 0
00BE 430
00BE 431      $MAC_INSERT_SYM AMA, DISABLE, 256,- ; Absolute addressing
00BE 432      ENB$G_ABSADDR
00CF 433
00CF 434      $MAC_INSERT_SYM FPT, DISABLE, 512,- ; Floating point truncation
00CF 435      ENB$G_FLPTRUNC
00E0 436
00E0 437      $MAC_INSERT_SYM LSB, DISABLE, 0,- ; Local symbol block
00E0 438      ENB$G_LOCALSYMB
00F1 439
00F1 440      $MAC_INSERT_SYM DBG, DISABLE, 2048,- ; Debugger symbol generation
00F1 441      ENB$G_DEBUG
0102 442
0102 443      $MAC_INSERT_SYM GBL, ENABLE, 4096,- ; Undefined to externals
0102 444      ENB$G_GLOBAL
0113 445
0113 446      $MAC_INSERT_SYM TBK, ENABLE, 8192,- ; Traceback/debug info output
0113 447      ENB$G_TRACEBACK
0124 448
0124 449      $MAC_INSERT_SYM SUP, DISABLE, 16384,- ; Suppress of unreferenced symbols
0124 450      ENB$G_SUPPRESS
00000128 0135 451      ;
0135 452      ENB$G_OPTIONS == ENB$G_SUPPRESS ;START OF TABLE
0135 453
0135 454      ; LONG FORMS OF THE ENABLE OPTIONS.  THE VALUE CONTAINED
0135 455      ; IS A POINTER TO ONE OF THE ABOVE NAME BLOCKS.
0135 456
00000000 0135 457      INSYMP = 0
0135 458
0135 459      $MAC_INSERT_SYX NONE, 0 ;SPECIAL FOR GETCMD
0143 460      ;(NEEDED FOR /ENABLE
0143 461      ;WITH NO VALUES)
0143 462      $MAC_INSERT_SYX ABSOLUTE, ENB$G_ABSADDR ;ABSOLUTE ADDRESSING
0155 463      $MAC_INSERT_SYX TRUNCATION, ENB$G_FLPTRUNC ;FLOATING POINT TRUNCATION
0169 464      $MAC_INSERT_SYX LOCAL_BLOCK, ENB$G_LOCALSYMB ;LOCAL SYMBOL BLOCK
017E 465      $MAC_INSERT_SYX DEBUG, ENB$G_DEBUG ;DEBUGGER SYMBOL GENERATION
018D 466      $MAC_INSERT_SYX TRACEBACK, ENB$G_TRACEBACK ;DEBUG/TRACEBACK INFO
01A0 467      $MAC_INSERT_SYX SUPPRESSION, ENB$G_SUPPRESS ;SUPPRESS UNREFERENCED SYMBO
01B5 468      $MAC_INSERT_SYX GLOBAL, ENB$G_GLOBAL,- ; Undefined globals
01B5 469      ENB$G_LONGNAMES
01C5 470
01C5 471      ;
01C5 472      ; LONG FORMS OF THE DEBUG OPTIONS.  THE VALUE CONTAINED IS AN INDEX USED
01C5 473      ; TO SELECTIVELY SET AND/OR CLEAR COMBINATIONS OF THE DEBUG/TRACEBACK FLAGS
01C5 474      ; SPECIFIED IN THE ENABLE/DISABLE OPTIONS TABLE ABOVE.  THE CORRESPONDING
01C5 475      ; BITS IN MAC$GL_ENLISF ARE ALSO SET/CLEARED AS REQUIRED.
01C5 476
00000000 01C5 477      INSYMP = 0
01C5 478
01C5 479
```

```
01C5 480 $MAC_INSERT_SYX ALL, 3 ;ENABLE BOTH DBG AND TBK
01D2 481 $MAC_INSERT_SYX TRACEBACK, 2 ;ENABLE TBK DISABLE DBG
01E5 482 $MAC_INSERT_SYX SYMBOLS, 1 ;ENABLE DBG DISABLE TBK
01F6 483 $MAC_INSERT_SYX NONE, 0,- ;DISABLE BOTH DBG AND TBK
01F6 484 DBG$G_LONGNAMES
0204 485
0204 486 :
0204 487 : NAMES FOR LOCAL SYMBOL BLOCK OPTION TO THE .PSECT_SAVE DIRECTIVE
0204 488 :
00000000 0204 489 INSIMP = 0
0204 490
0204 491 $MAC_INSERT_SYX LSB,0 ;ALLOW 'LSB'
0211 492 $MAC_INSERT_SYX LOCAL_BLOCK,0,- ; or 'LOCAL_BLOCK'
0211 493 MAC$G_LSBNAM
```



```

0226 495      .SBTTL SYMBOLS FOR .DEFAULT DIRECTIVE
0226 496
0226 497 :
0226 498 : THE .DEFAULT DIRECTIVE TAKES AN ARGUMENT DESCRIBING WHAT IS
0226 499 : BEING DEFAULTED.
0226 500 :
00000000 0226 501      INSYP =      0
0226 502
0226 503      $MAC_INSERT_SYX DISPLACEMENT,0,-      ; PC-displacement
0226 504      MAC$DFLT_LIST
023C 505
023C 506 :
023C 507 : THE DISPLACEMENT CAN BE 'BYTE', 'WORD', OR 'LONG'
023C 508 : THE VALUE IS THE INDEX (1-3) INTO A TABLE.
023C 509 :
00000000 023C 510      INSYP =      0
023C 511      $MAC_INSERT_SYX LONG,      3      ;LONGWORD--4 BYTES
024A 512      $MAC_INSERT_SYX WORD,      2      ;WORD--2 BYTES
0258 513      $MAC_INSERT_SYX BYTE,      1,MAC$DSPL_ARGS ;BYTE--1 BYTE

```

```
0266 515 .SBTTL OPCODE DEFINITIONS
0266 516
0266 517 :
0266 518 :
0266 519 :
0266 520 :
0266 521 :
0266 522 :
0266 523 :
0266 524 :
0266 525 :
0266 526 :
0266 527 :
0266 528 :
0266 529 :
0266 530 :
0266 531 :
0266 532 :
0266 533 :
0266 534 :
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0266 536 :
0266 537 :
0266 538 :
0266 539 :
0266 540 :
0266 541 :
0266 542 :
0266 543 :
0266 544 :
0266 545 :
0266 546 :
```

OPCODE DEFINITIONS

THE FOLLOWING MACRO IS USED TO DEFINE THE STAR OPCODE SET. THE CALLING FORMAT IS:

OPDEF NAME,OPCODE,<ARG1,ARG2,....>

WHERE 'NAME' IS THE NAME OF THE MACHINE INSTRUCTION, 'OPCODE' IS THE VALUE OF THE OPCODE (POSSIBLY 2 BYTES), AND 'ARG(N)' ARE THE N'TH OPERAND DESCRIPTORS. 'ARG(N)' CONSISTS OF ONE BYTE WITH THE LOWER 4 BITS CONTAINING THE WIDTH (IN BYTES) OF THE OPERAND, AND THE UPPER 4 BYTS CONTAINING FLAGS DESCRIBING THE OPERAND TYPE.;

.MACRO OPDEF NME,CODE,ARGS ;NAME, OPCODE, <MODE1,ARG1,...>

\$COUNT = 0 ;FIRST COUNT THE OPERANDS

.IRP X,<ARGS>

\$COUNT = \$COUNT + 1

.ENDM

SYM NME,DOPCODE,CODE,\\$COUNT

.IRP X,<ARGS>

.WORD X ;FILL IN OPERAND DESCRIPTORS

.ENDR

.ENDM OPDEF


```
0266 548 :  
0266 549 : TABLE OF ILLEGAL ADDRESSING MODES  
0266 550 : A BIT IS SET FOR EACH ILLEGAL MODE FOR EACH OPERAND ACCESS TYPE  
0266 551 :  
0266 552 .MACRO ILL_MOD ARG1  
0266 553 Z=0  
0266 554 .IRP DARG,<ARG1>  
0266 555 .IF NB DARG  
0266 556 Z=Z+1@<ADMS_'DARG'>  
0266 557 .ENDC  
0266 558 .ENDR  
0266 559 .WORD Z  
0266 560 .ENDM  
0266 561  
0266 562  
0000 015C 563 .PSECT MAC$PRMSYMTAB,GBL,NOEXE,NOWRT,LONG  
015C 564  
015C 565 MAC$AW_ILLMODTB::  
0000 015C 566 ILL_MOD <LITERAL,REGISTER> ;ADDRESS  
015E 567 .WORD 0 ;READ  
0160 568 ILL_MOD <LITERAL,IMMEDIATE> ;MODIFY  
0162 569 ILL_MOD <LITERAL,IMMEDIATE> ;WRITE  
0164 570 ILL_MOD <LITERAL> ;FIELD  
0166 571 ILL_MOD <LITERAL,IMMEDIATE,ABSOLUTE,PIC,- ;BRANCH BYTE  
0166 572 INDEX,REGISTER,RRIND,REGAUTODEC,-  
0166 573 REGAUTOINC,DFRAUTOINC,DFBYTEDISP,-  
0166 574 DFLORDDISP,DFLONGDISP>  
0168 575 ILL_MOD <LITERAL,IMMEDIATE,ABSOLUTE,PIC,- ;BRANCH WORD  
0168 576 INDEX,REGISTER,RRIND,REGAUTODEC,-  
0168 577 REGAUTOINC,DFRAUTOINC,DFBYTEDISP,-  
0168 578 DFLORDDISP,DFLONGDISP>
```

000000A1 000000C2

NOTE: ALL OPCODE VALUES ARE IN HEXADECIMAL

;DEFINE BRANCH BYTE
;DEFINE BRANCH WORD

016A	580	::++									
016A	581	::									
016A	582	::--									
016A	583										
016A	584	BB==OPD\$M_BB									
016A	585	BW==OPD\$M_BW									
016A	586										
016A	587	OPDEF HALT	<<<0>>>								
017C	588	OPDEF NOP	<<<1>>>								
018D	589	OPDEF REI	<<<2>>>								
019E	590	OPDEF BPT	<<<3>>>								
01AF	591	OPDEF RET	<<<4>>>								
01C0	592	OPDEF RSB	<<<5>>>								
01D1	593	OPDEF LDPCTX	<<<6>>>								
01E5	594	OPDEF SVPCTX	<<<7>>>								
01F9	595										
01F9	596	OPDEF CVTPS	<<<^X8>>>	<RW	AB	RW	AB>				
0214	597	OPDEF CVTSP	<<<^X9>>>	<RW	AB	RW	AB>				
022F	598	OPDEF INDEX	<<<^XA>>>	<RL	RL	RL	RL>	RL		WL>	
024E	599	OPDEF CRC	<<<^XB>>>	<AB	RL	RW	AB>				
0267	600	OPDEF PROBER	<<<^XC>>>	<RB	RW	AB>					
0281	601	OPDEF PROBEW	<<<^XD>>>	<RB	RW	AB>					
029B	602	OPDEF INSQUE	<<<^XE>>>	<AB	AB>						
02B3	603	OPDEF REMQUE	<<<^XF>>>	<AB	WL>						
02CB	604										
02CB	605	OPDEF BSBB	<<<^X10>>>	BB							
02DF	606	OPDEF BSB	<<<^X10>>>	BB							
02F2	607	OPDEF BRB	<<<^X11>>>	BB							
0305	608	OPDEF BNEQ	<<<^X12>>>	BB							
0319	609	OPDEF BNEQU	<<<^X12>>>	BB							
032E	610	OPDEF BEQL	<<<^X13>>>	BB							
0342	611	OPDEF BEQLU	<<<^X13>>>	BB							
0357	612	OPDEF BGTR	<<<^X14>>>	BB							
036B	613	OPDEF BLEQ	<<<^X15>>>	BB							
037F	614	OPDEF JSB	<<<^X16>>>	AB							
0392	615	OPDEF JMP	<<<^X17>>>	AB							
03A5	616										
03A5	617	OPDEF BGEQ	<<<^X18>>>	BB							
03B9	618	OPDEF BLSS	<<<^X19>>>	BB							
03CD	619	OPDEF BGTRU	<<<^X1A>>>	BB							
03E2	620	OPDEF BLEQU	<<<^X1B>>>	BB							
03F7	621	OPDEF BVC	<<<^X1C>>>	BB							
040A	622	OPDEF BVS	<<<^X1D>>>	BB							
041D	623	OPDEF BGEQU	<<<^X1E>>>	BB							
0432	624	OPDEF BCC	<<<^X1E>>>	BB							
0445	625	OPDEF BLSSU	<<<^X1F>>>	BB							
045A	626	OPDEF BCS	<<<^X1F>>>	BB							
046D	627										
046D	628	OPDEF ADDP4	<<<^X20>>>	<RW	AB	RW	AB>				
0488	629	OPDEF ADDP	<<<^X20>>>	<RW	AB	RW	AB>				
04A2	630	OPDEF ADDP6	<<<^X21>>>	<RW	AB	RW	AB>	RW		AB>	
04C1	631	OPDEF SUBP4	<<<^X22>>>	<RW	AB	RW	AB>				
04DC	632	OPDEF SUBP	<<<^X22>>>	<RW	AB	RW	AB>				
04F6	633	OPDEF SUBP6	<<<^X23>>>	<RW	AB	RW	AB>	RW		AB>	
0515	634	OPDEF CVTPT	<<<^X24>>>	<RW	AB	AB	RW	AB>			
0532	635	OPDEF MULP	<<<^X25>>>	<RW	AB	RW	AB>	RW		AB>	
0550	636	OPDEF CVTTP	<<<^X26>>>	<RW	AB	AB	RW	AB>			


```
056D 637 OPDEF DIVP <<<^X27>>> <RW AB RW AB RW AB>
```

058B	639	OPDEF	MOV C3	<<<^X28>>>	<RW	AB	AB>			
05A4	640	OPDEF	MOV C	<<<^X28>>>	<RW	AB	AB>			
05BC	641	OPDEF	CMPC3	<<<^X29>>>	<RW	AB	AB>			
05D5	642	OPDEF	CMPC	<<<^X29>>>	<RW	AB	AB>			
05ED	643	OPDEF	SCANC	<<<^X2A>>>	<RW	AB	AB	RB>		
0608	644	OPDEF	SPANC	<<<^X2B>>>	<RW	AB	AB	RB>		
0623	645	OPDEF	MOV C5	<<<^X2C>>>	<RW	AB	RB	RW	AB>	
0640	646	OPDEF	CMPC5	<<<^X2D>>>	<RW	AB	RB	RW	AB>	
065D	647	OPDEF	MOVTC	<<<^X2E>>>	<RW	AB	RB	AB	RW	AB>
067C	648	OPDEF	MOVTUC	<<<^X2F>>>	<RW	AB	RB	AB	RW	AB>
069C	649									
069C	650	OPDEF	BSBW	<<<^X30>>>	BW					
06B0	651	OPDEF	BRW	<<<^X31>>>	BW					
06C3	652	::OPDEF	BR	<<<^X31>>>	BW					
06C3	653	OPDEF	CVTWL	<<<^X32>>>	<RW	WL>				
06DA	654	OPDEF	CVTWB	<<<^X33>>>	<RW	WB>				
06F1	655	OPDEF	MOV P	<<<^X34>>>	<RW	AB	AB>			
0709	656	OPDEF	CMPP3	<<<^X35>>>	<RW	AB	AB>			
0722	657	OPDEF	CMPP	<<<^X35>>>	<RW	AB	AB>			
073A	658	OPDEF	CVTPL	<<<^X36>>>	<RW	AB	WL>			
0753	659	OPDEF	CMPP4	<<<^X37>>>	<RW	AB	RW	AB>		
076E	660									
076E	661	OPDEF	EDITPC	<<<^X38>>>	<RW	AB	AB	AB>		
078A	662	OPDEF	MATCHC	<<<^X39>>>	<RW	AB	RW	AB>		
07A6	663	OPDEF	LOCC	<<<^X3A>>>	<RB	RW	AB>			
07BE	664	OPDEF	SKPC	<<<^X3B>>>	<RB	RW	AB>			
07D6	665	OPDEF	MOVZWL	<<<^X3C>>>	<RW	WL>				
07EE	666	OPDEF	ACBW	<<<^X3D>>>	<RW	RW	MW	BW>		
0808	667	OPDEF	MOVAW	<<<^X3E>>>	<AW	WL>				
081F	668	OPDEF	PUSHAW	<<<^X3F>>>	AW					
0835	669									
0835	670									
0835	671	OPDEF	ADDF2	<<<^X40>>>	<RF	MF>				
084C	672	OPDEF	ADDF	<<<^X40>>>	<RF	MF>				
0862	673	OPDEF	ADDF3	<<<^X41>>>	<RF	RF	WF>			
087B	674	OPDEF	SUBF2	<<<^X42>>>	<RF	MF>				
0892	675	OPDEF	SUBF	<<<^X42>>>	<RF	MF>				
08A8	676	OPDEF	SUBF3	<<<^X43>>>	<RF	RF	WF>			
08C1	677	OPDEF	MULF2	<<<^X44>>>	<RF	MF>				
08D8	678	OPDEF	MULF	<<<^X44>>>	<RF	MF>				
08EE	679	OPDEF	MULF3	<<<^X45>>>	<RF	RF	WF>			
0907	680	OPDEF	DIVF2	<<<^X46>>>	<RF	MF>				
091E	681	OPDEF	DIVF	<<<^X46>>>	<RF	MF>				
0934	682	OPDEF	DIVF3	<<<^X47>>>	<RF	RF	WF>			
094D	683									
094D	684	OPDEF	CVTFB	<<<^X48>>>	<RF	WB>				
0964	685	OPDEF	CVTFW	<<<^X49>>>	<RF	WW>				
097B	686	OPDEF	CVTFL	<<<^X4A>>>	<RF	WL>				
0992	687	OPDEF	CVTRFL	<<<^X4B>>>	<RF	WL>				
09AA	688	OPDEF	CVTBF	<<<^X4C>>>	<RB	WF>				
09C1	689	OPDEF	CVTWF	<<<^X4D>>>	<RW	WF>				
09D8	690	OPDEF	CVTLF	<<<^X4E>>>	<RL	WF>				
09EF	691	OPDEF	ACBF	<<<^X4F>>>	<RF	RF	MF	BW>		

0A09	693	OPDEF	MOVF	<<<^X50>>>	<RF	WF>			
0A1F	694	OPDEF	CMPF	<<<^X51>>>	<RF	RF>			
0A35	695	OPDEF	MNEGF	<<<^X52>>>	<RF	WF>			
0A4C	696	OPDEF	TSTF	<<<^X53>>>	RF				
0A60	697	OPDEF	EMODF	<<<^X54>>>	<RF	RB	RF	WL	WF>
0A7D	698	OPDEF	POLYF	<<<^X55>>>	<RF	RW	AB>		
0A96	699	OPDEF	CVTFD	<<<^X56>>>	<RF	WD>			
0AAD	700	:	RESERVED	57					
0AAD	701								
0AAD	702	OPDEF	ADAWI	<<<^X58>>>	<RW	MW>			
0AC4	703	:	RESERVED	59					
0AC4	704	:	RESERVED	5A					
0AC4	705	:	RESERVED	5B					
0AC4	706	OPDEF	INSQHI	<<<^X5C>>>	<AB	AQ>			
0ADC	707	OPDEF	INSQTI	<<<^X5D>>>	<AB	AQ>			
0AF4	708	OPDEF	REMQHI	<<<^X5E>>>	<AQ	WL>			
0B0C	709	OPDEF	REMQTI	<<<^X5F>>>	<AQ	WL>			
0B24	710								
0B24	711	OPDEF	ADDD2	<<<^X60>>>	<RD	MD>			
0B3B	712	OPDEF	ADDD	<<<^X60>>>	<RD	MD>			
0B51	713	OPDEF	ADDD3	<<<^X61>>>	<RD	RD	WD>		
0B6A	714	OPDEF	SUBD2	<<<^X62>>>	<RD	MD>			
0B81	715	OPDEF	SUBD	<<<^X62>>>	<RD	MD>			
0B97	716	OPDEF	SUBD3	<<<^X63>>>	<RD	RD	WD>		
0BB0	717	OPDEF	MULD2	<<<^X64>>>	<RD	MD>			
0BC7	718	OPDEF	MULD	<<<^X64>>>	<RD	MD>			
0BDD	719	OPDEF	MULD3	<<<^X65>>>	<RD	RD	WD>		
0BF6	720	OPDEF	DIVD2	<<<^X66>>>	<RD	MD>			
0C0D	721	OPDEF	DIVD	<<<^X66>>>	<RD	MD>			
0C23	722	OPDEF	DIVD3	<<<^X67>>>	<RD	RD	WD>		
0C3C	723								
0C3C	724	OPDEF	CVTDB	<<<^X68>>>	<RD	WB>			
0C53	725	OPDEF	CVTDW	<<<^X69>>>	<RD	WW>			
0C6A	726	OPDEF	CVTDL	<<<^X6A>>>	<RD	WL>			
0C81	727	OPDEF	CVTRDL	<<<^X6B>>>	<RD	WL>			
0C99	728	OPDEF	CVTBD	<<<^X6C>>>	<RB	WD>			
0CB0	729	OPDEF	CVTWD	<<<^X6D>>>	<RW	WD>			
0CC7	730	OPDEF	CVTLD	<<<^X6E>>>	<RL	WD>			
0CDE	731	OPDEF	ACBD	<<<^X6F>>>	<RD	RD	MD	BW>	
0CF8	732								
0CF8	733	OPDEF	MOVD	<<<^X70>>>	<RD	WD>			
0D0E	734	OPDEF	CMFD	<<<^X71>>>	<RD	RD>			
0D24	735	OPDEF	MNEGD	<<<^X72>>>	<RD	WD>			
0D3B	736	OPDEF	TSTD	<<<^X73>>>	RD				
0D4F	737	OPDEF	EMODD	<<<^X74>>>	<RD	RB	RD	WL	WD>
0D6C	738	OPDEF	POLYD	<<<^X75>>>	<RD	RW	AB>		
0D85	739	OPDEF	CVTDF	<<<^X76>>>	<RD	WF>			
0D9C	740	:	RESERVED	77					

0D9C	742	OPDEF	ASHL	<<<^X78>>>	<RB	RL	WL>	
0DB4	743	OPDEF	ASHQ	<<<^X79>>>	<RB	RQ	WQ>	
0DCC	744	OPDEF	EMUL	<<<^X7A>>>	<RL	RL	RL	WQ>
0DE6	745	OPDEF	EDIV	<<<^X7B>>>	<RL	RQ	WL	WL>
0E00	746	OPDEF	CLRQ	<<<^X7C>>>	WQ			
0E14	747	OPDEF	CLRD	<<<^X7C>>>	WD			
0E28	748	OPDEF	CLRG	<<<^X7C>>>	WG			
0E3C	749	OPDEF	MOVQ	<<<^X7D>>>	<RQ	WQ>		
0E52	750	OPDEF	MOVAQ	<<<^X7E>>>	<AQ	WL>		
0E69	751	OPDEF	MOVAD	<<<^X7E>>>	<AD	WL>		
0E80	752	OPDEF	MOVAG	<<<^X7E>>>	<AG	WL>		
0E97	753	OPDEF	PUSHAQ	<<<^X7F>>>	AQ			
0EAD	754	OPDEF	PUSHAD	<<<^X7F>>>	AD			
0EC3	755	OPDEF	PUSHAG	<<<^X7F>>>	AG			
0ED9	756							
0ED9	757	OPDEF	ADDB2	<<<^X80>>>	<RB	MB>		
0EF0	758	OPDEF	ADDB	<<<^X80>>>	<RB	MB>		
0F06	759	OPDEF	ADDB3	<<<^X81>>>	<RB	RB	WB>	
0F1F	760	OPDEF	SUBB2	<<<^X82>>>	<RB	MB>		
0F36	761	OPDEF	SUBB	<<<^X82>>>	<RB	MB>		
0F4C	762	OPDEF	SUBB3	<<<^X83>>>	<RB	RB	WB>	
0F65	763	OPDEF	MULB2	<<<^X84>>>	<RB	MB>		
0F7C	764	OPDEF	MULB	<<<^X84>>>	<RB	MB>		
0F92	765	OPDEF	MULB3	<<<^X85>>>	<RB	RB	WB>	
0FAB	766	OPDEF	DIVB2	<<<^X86>>>	<RB	MB>		
0FC2	767	OPDEF	DIVB	<<<^X86>>>	<RB	MB>		
0FD8	768	OPDEF	DIVB3	<<<^X87>>>	<RB	RB	WB>	
0FF1	769							
0FF1	770	OPDEF	BISB2	<<<^X88>>>	<RB	MB>		
1008	771	OPDEF	BISB	<<<^X88>>>	<RB	MB>		
101E	772	OPDEF	BISB3	<<<^X89>>>	<RB	RB	WB>	
1037	773	OPDEF	BICB2	<<<^X8A>>>	<RB	MB>		
104E	774	OPDEF	BICB	<<<^X8A>>>	<RB	MB>		
1064	775	OPDEF	BICB3	<<<^X8B>>>	<RB	RB	WB>	
107D	776	OPDEF	XORB2	<<<^X8C>>>	<RB	MB>		
1094	777	OPDEF	XORB	<<<^X8C>>>	<RB	MB>		
10AA	778	OPDEF	XORB3	<<<^X8D>>>	<RB	RB	WB>	
10C3	779	OPDEF	MNEGB	<<<^X8E>>>	<RB	WB>		
10DA	780	OPDEF	CASEB	<<<^X8F>>>	<RB	RB	RB>	
10F3	781							
10F3	782	OPDEF	MOVB	<<<^X90>>>	<RB	WB>		
1109	783	OPDEF	CMPB	<<<^X91>>>	<RB	RB>		
111F	784	OPDEF	MCOMB	<<<^X92>>>	<RB	WB>		
1136	785	OPDEF	BITB	<<<^X93>>>	<RB	RB>		
114C	786	OPDEF	CLRB	<<<^X94>>>	WB			
1160	787	OPDEF	TSTB	<<<^X95>>>	RB			
1174	788	OPDEF	INCB	<<<^X96>>>	MB			
1188	789	OPDEF	DECB	<<<^X97>>>	MB			
119C	790							
119C	791	OPDEF	CVTBL	<<<^X98>>>	<RB	WL>		
11B3	792	OPDEF	CVTBW	<<<^X99>>>	<RB	WW>		
11CA	793	OPDEF	MOVZBL	<<<^X9A>>>	<RB	WL>		
11E2	794	OPDEF	MOVZBW	<<<^X9B>>>	<RB	WW>		
11FA	795	OPDEF	ROTL	<<<^X9C>>>	<RB	RL	RL>	
1212	796	OPDEF	ACBB	<<<^X9D>>>	<RB	RB	MB	BW>
122C	797	OPDEF	MOVAB	<<<^X9E>>>	<AB	WL>		
1243	798	OPDEF	PUSHAB	<<<^X9F>>>	AB			

1259	800	OPDEF	ADDW2	<<<^XA0>>>	<RW	MW>	
1270	801	OPDEF	ADDW	<<<^XA0>>>	<RW	MW>	
1286	802	OPDEF	ADDW3	<<<^XA1>>>	<RW	RW	WW>
129F	803	OPDEF	SUBW2	<<<^XA2>>>	<RW	MW>	
12B6	804	OPDEF	SUBW	<<<^XA2>>>	<RW	MW>	
12CC	805	OPDEF	SUBW3	<<<^XA3>>>	<RW	RW	WW>
12E5	806	OPDEF	MULW2	<<<^XA4>>>	<RW	MW>	
12FC	807	OPDEF	MULW	<<<^XA4>>>	<RW	MW>	
1312	808	OPDEF	MULW3	<<<^XA5>>>	<RW	RW	WW>
132B	809	OPDEF	DIVW2	<<<^XA6>>>	<RW	MW>	
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1358	811	OPDEF	DIVW3	<<<^XA7>>>	<RW	RW	WW>
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139E	815	OPDEF	BISW3	<<<^XA9>>>	<RW	RW	WW>
13B7	816	OPDEF	BICW2	<<<^XAA>>>	<RW	MW>	
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13E4	818	OPDEF	BICW3	<<<^XAB>>>	<RW	RW	WW>
13FD	819	OPDEF	XORW2	<<<^XAC>>>	<RW	MW>	
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149F	827	OPDEF	MCOMW	<<<^XB2>>>	<RW	WW>	
14B6	828	OPDEF	BITW	<<<^XB3>>>	<RW	RW>	
14CC	829	OPDEF	CLRW	<<<^XB4>>>	WW		
14E0	830	OPDEF	TSTW	<<<^XB5>>>	RW		
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1508	832	OPDEF	DECW	<<<^XB7>>>	MW		
151C	833						
151C	834	OPDEF	BISPSW	<<<^XB8>>>	RW		
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155C	837	OPDEF	PUSHR	<<<^XBB>>>	RW		
1571	838	OPDEF	CHMK	<<<^XBC>>>	RW		
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15C1	842						
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1834	872	OPDEF	CLRL	<<<^XD4>>>	WL			
1848	873	OPDEF	CLRF	<<<^XD4>>>	WF			
185C	874	OPDEF	TSTL	<<<^XD5>>>	RL			
1870	875	OPDEF	INCL	<<<^XD6>>>	ML			
1884	876	OPDEF	DECL	<<<^XD7>>>	ML			
1898	877							
1898	878	OPDEF	ADWC	<<<^XD8>>>	<RL	ML>		
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191B	884	OPDEF	POPL	<<<^X8ED0>>>	WL			
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1C5F	923	OPDEF	ESCE	<<<^XFE>>>	: RESERVED						
1C71	924	OPDEF	ESCF	<<<^XFF>>>	: RESERVED						
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1C95	926	OPDEF	BUGL	<<<^XFDFF>>>							
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2209 987 .SBTTL DIRECTIVES
2209 988 :
2209 989 : LISTED BELOW ARE THE DIRECTIVES FOR THE MARS LANGUAGE.
2209 990 :
2209 991 :
2209 992 :
2209 993 SYM .ADDRESS, KADDRESS
221F 994 SYM .ALIGN, KALIGN
2233 995 SYM .ASCIC, KASCIC
2247 996 SYM .ASCID, KASCID
225B 997 SYM .ASCII, KASCII
226F 998 SYM .ASCIZ, KASCIZ
2283 999 SYM .BLKA, KBLKA
2296 1000 SYM .BLKB, KBLKB
22A9 1001 SYM .BLKD, KBLKD
22BC 1002 SYM .BLKF, KBLKF
22CF 1003 SYM .BLKG, KBLKG
22E2 1004 SYM .BLKH, KBLKH
22F5 1005 SYM .BLKL, KBLKL
2308 1006 SYM .BLKO, KBLKO
231B 1007 SYM .BLKQ, KBLKQ
232E 1008 SYM .BLKW, KBLKW
2341 1009 SYM .BYTE, KBYTE
2354 1010 SYM .CROSS, KCROSS
2368 1011 SYM .DEBUG, KDEBUG
237C 1012 SYM .DEFAULT, KDFLT
2392 1013 SYM .DISABLE, KDSABL
23A8 1014 SYM .DOUBLE, KDOUBLE
23BD 1015 SYM .DSABL, KDSABL
23D1 1016 SYM .D FLOATING, KDOUBLE
23EA 1017 SYM .ENABL, KENABL
23FE 1018 SYM .ENABLE, KENABL
2413 1019 SYM .END, KEND
2425 1020 SYM .ENDC, KENDC
2438 1021 SYM .ENDM, KENDM
244B 1022 SYM .ENDR, KENDR
245E 1023 SYM .ENTRY, KENTRY
2472 1024 SYM .ERROR, KERROR
2486 1025 SYM .EVEN, KEVEN
2499 1026 SYM .EXTERNAL, KEXTRN
24B0 1027 SYM .EXTRN, KEXTRN
24C4 1028 SYM .FLOAT, KFLOAT
24D8 1029 SYM .FIELD, KFIELD
24D8 1030 SYM .F FLOATING, KFLOAT
24F1 1031 SYM .GLOBAL, KGLOBL
2506 1032 SYM .GLOBL, KGLOBL
251A 1033 SYM .G FLOATING, KGFLOAT
2533 1034 SYM .H FLOATING, KHFLOAT
254C 1035 SYM .IDENT, KIDENT
2560 1036 SYM .IF, KIF
2571 1037 SYM .IFF, KIFF
2583 1038 SYM .IF FALSE, KIFF
259A 1039 SYM .IFT, KIFT
25AC 1040 SYM .IF TRUE, KIFT
25C2 1041 SYM .IFTF, KIFTF
25D5 1042 SYM .IF TRUE FALSE, KIFTF
25F1 1043 SYM .IIF, RIIF
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2603	1044	SYM	.IRPC, KIRPC
2616	1045	SYM	.IRP, KIRP
2628	1046	SYM	.LIBRARY, KLIBRARY
263E	1047	SYM	.LINK, KLINK
2651	1048	SYM	.LIST, KLIST
2664	1049	SYM	.LONG, KLONG
2677	1050	SYM	.MACRO, KMACRO
268B	1051	SYM	.MASK, KVECTOR
269E	1052	SYM	.MDELÉTE, KMDELETE
26B4	1053	SYM	.MCALL, KMCALL
26C8	1054	SYM	.MEXIT, KMEXIT
26DC	1055	SYM	.NARG, KNARG
26EF	1056	SYM	.NCHR, KNCHR
2702	1057	SYM	.NLIST, KNLIST
2716	1058	SYM	.NOCROSS, KNCROS
272C	1059	SYM	.NOSHOW, KNLIST
2741	1060	SYM	.NTYPE, KNTYPE
2755	1061	SYM	.OCTA, KOCTA
2768	1062	SYM	.ODD, KODD
277A	1063	SYM	.OPDEF, KOPDEF
278E	1064	SYM	.PACKED, KPACKED
27A3	1065	SYM	.PAGE, KPAGE
27B6	1066	SYM	.PRINT, KPRINT
27CA	1067	SYM	.PSECT, KPSECT
27DE	1068	SYM	.QUAD, KQUAD
27F1	1069	SYM	.REF1, KREF1
2804	1070	SYM	.REF2, KREF2
2817	1071	SYM	.REF4, KREF4
282A	1072	SYM	.REF8, KREF8
283D	1073	SYM	.REF16, KREF16
2851	1074	SYM	.REPEAT, KREPT
2866	1075	SYM	.REPT, KREPT
2879	1076	SYM	.RESTORE, KRESTORE
288F	1077	SYM	.RESTORE PSECT, KRESTORE
28AB	1078	SYM	.SAVE, RSAVE
28BE	1079	SYM	.SAVE PSECT, KSAVE
28D7	1080	SYM	.SBTTL, KSBTTL
28EB	1081	SYM	.SHOW, KLIST
28FE	1082	SYM	.SIGNED_BYTE, KSGNB
2918	1083	SYM	.SIGNED_WORD, KSGNW
2932	1084	SYM	.SUBTITLE, KSBTTL
2949	1085	SYM	.TITLE, KTITLE
295D	1086	SYM	.TRANSFER, KXFER
2974	1087	SYM	.WARN, KWARN
2987	1088	SYM	.WEAK, KWEAK
299A	1089	SYM	.WORD, KWORD
29AD	1090	SYM	.VECTOR, KVECTOR
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MAC\$SYMTAB
Symbol table

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16-SEP-1984 01:54:17
5-SEP-1984 01:49:57

VAX/VMS Macro V04-00
[MACRO.SRC]SYMTAB.MAR;1

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(23)

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MACSSYMTAB
Symbol table

PERMANENT SYMBOL TABLE

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VAX/VMS Macro V04-00
[MACRO.SRC]SYMTAB.MAR;1

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CHR\$V_NOCVT = 0000007F
CHR\$V_NUM_BER = 00000004
CHR\$V_SPA_MSK = 00000000
CHR\$V_SYM_CH1 = 00000003
CHR\$V_SYM_CHR = 00000002
CHR\$V_SYM_DLM = 00000001
CR = 0000000D
CRF\$M_DEFAULT = 00000012
CRF\$M_DIR = 00000001
CRF\$M_MACROS = 00000002
CRF\$M_OPCODES = 00000004
CRF\$M_REGISTERS = 00000008
CRF\$M_SYMBOLS = 00000010
CRF\$V_DIR = 00000000
CRF\$V_MACROS = 00000001
CRF\$V_OPCODES = 00000002
CRF\$V_REGISTERS = 00000003
CRF\$V_SYMBOLS = 00000004
D = 0000C008
DAND = 0000001D
DANGCLS = 00000016
DANGOPN = 00000015
DAT = 00000020
DBG\$G_LONGNAMES = 000001FB RG 09
DBUP = 0000002B
DCLS = 00000018
DCOLON = 00000010
DCOMMA = 0000000F
DDIV = 0000001C
DEOL = 0000000B
DEQ = 00000011
DGUP = 0000002C
DINTEGER = 00000022
DISABLE = 00000000
DIUP = 0000002D
DLUP = 0000002E
DMASK = 00000032
DMINUS = 0000001A
DOPCODE = 0000000E
DOPN = 00000017
DOR = 0000001E
DPC = 00000012
DPLUS = 00000019
DPOUND = 00000021
DSQCLS = 00000014
DSQOPN = 00000013
DSUP = 0000002F
DTIMES = 0000001B
DUPA = 00000023
DUPB = 00000024
DUPC = 00000025
DUPD = 00000026
DUPF = 00000028
DUPM = 00000029
DUPO = 00000027
DUPX = 0000002A
DWUP = 00000030

DXOR = 0000001F
ENABLE = FFFFFFFF
ENB\$G_ABSADDR = 000000C2 RG 09
ENB\$G_DEBUG = 000000F5 RG 09
ENB\$G_FLPTRUNC = 000000D3 RG 09
ENB\$G_GLOBAL = 00000106 RG 09
ENB\$G_LOCALSYMB = 000000E4 RG 09
ENB\$G_LONGNAMES = 000001BC RG 09
ENB\$G_OPTIONS = 00000128 RG 09
ENB\$G_SUPPRESS = 00000128 RG 09
ENB\$G_TRACEBACK = 00000117 RG 09
ERR01 = 00000001
ERR02 = 00000002
ERR03 = 00000003
ERR04 = 00000004
ERR05 = 00000005
ERR06 = 00000006
ERR07 = 00000007
ERR08 = 00000008
ERR09 = 00000009
F = 00008004
FF = 0000000C
FLG\$M_ALLCHR = 00000001
FLG\$M_BOL = 00000002
FLG\$M_CHKLPND = 00100000
FLG\$M_COMPEXPR = 00000004
FLG\$M_CONT = 00000008
FLG\$M_CRF = 40000000
FLG\$M_CRSEEN = 00000001
FLG\$M_DATRPT = 00000010
FLG\$M_DBGOUT = 00004000
FLG\$M_DLIMSTR = 00008000
FLG\$M_ENDMCH = 00000020
FLG\$M_EVALEXPR = 00000040
FLG\$M_EXPOPT = 00000080
FLG\$M_EXTERR = 00010000
FLG\$M_EXTWRN = 00020000
FLG\$M_FIRSTLN = 00000200
FLG\$M_IFSTAT = 00800000
FLG\$M_IIF = 00400000
FLG\$M_INSERT = 00000100
FLG\$M_IRPC = 20000000
FLG\$M_LEXOP = 00000002
FLG\$M_LSTXST = 00000200
FLG\$M_MAC2COL = 00000800
FLG\$M_MACL = 00000800
FLG\$M_MACLTB = 08000000
FLG\$M_MACTXT = 00010000
FLG\$M_MEBLST = 00001000
FLG\$M_MOREARG = 00002000
FLG\$M_MOREINP = 00000008
FLG\$M_NEWPND = 00000400
FLG\$M_NOREF = 01000000
FLG\$M_NTTYPEPC = 00000020
FLG\$M_NULCHR = 00040000
FLG\$M_OBJXST = 00200000
FLG\$M_OPNDCHK = 00000100

FLG\$M_OPRND = 00002000
FLG\$M_OPTVFLIDX = 00001000
FLG\$M_ORDLST = 00020000
FLG\$M_P2 = 00004000
FLG\$M_RPTIRP = 10000000
FLG\$M_SEQFIL = 02000000
FLG\$M_SKAN = 00008000
FLG\$M_SPECOP = 00000004
FLG\$M_SPLALL = 04000000
FLG\$M_STOIMF = 00040000
FLG\$M_SYM2COL = 00000400
FLG\$M_TOCFLG = 00080000
FLG\$M_UPAFLG = 00000010
FLG\$M_UPDFIL = 00000080
FLG\$M_UPMARG = 00000040
FLG\$M_XCRF = 80000000
FLG\$V_ALLCHR = 00000000
FLG\$V_BOL = 00000001
FLG\$V_CHKLPND = 00000014
FLG\$V_COMPEXPR = 00000002
FLG\$V_CONT = 00000003
FLG\$V_CRF = 0000001E
FLG\$V_CRSEEN = 00000020
FLG\$V_DATRPT = 00000004
FLG\$V_DBGOUT = 0000002E
FLG\$V_DLIMSTR = 0000002F
FLG\$V_ENDMCH = 00000005
FLG\$V_EVALEXPR = 00000006
FLG\$V_EXPOPT = 00000007
FLG\$V_EXTERR = 00000030
FLG\$V_EXTWRN = 00000031
FLG\$V_FIRSTLN = 00000029
FLG\$V_IFSTAT = 00000017
FLG\$V_IIF = 00000016
FLG\$V_INSERT = 00000008
FLG\$V_IRPC = 0000001D
FLG\$V_LEXOP = 00000021
FLG\$V_LSTXST = 00000009
FLG\$V_MAC2COL = 0000002B
FLG\$V_MACL = 0000000B
FLG\$V_MACLTB = 0000001B
FLG\$V_MACTXT = 00000010
FLG\$V_MEBLST = 0000000C
FLG\$V_MOREARG = 0000002D
FLG\$V_MOREINP = 00000023
FLG\$V_NEWPND = 0000000A
FLG\$V_NOREF = 00000018
FLG\$V_NTTYPEPC = 00000025
FLG\$V_NULCHR = 00000032
FLG\$V_OBJXST = 00000015
FLG\$V_OPNDCHK = 00000028
FLG\$V_OPRND = 0000000D
FLG\$V_OPTVFLIDX = 0000002C
FLG\$V_ORDLST = 00000011
FLG\$V_P2 = 0000000E
FLG\$V_RPTIRP = 0000001C
FLG\$V_SEQFIL = 00000019

MAC\$SYMTAB
Symbol table

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FLGSV_SKAN	=	0000000F				KGFLOAT	=	00000081				LST\$G_MACROXPAN	00000034	RG	09	
FLGSV_SPECOP	=	00000022				KGLOBL	=	0000005E				LST\$K_BUF\$IZ	=	00000086		
FLGSV_SPLALL	=	0000001A				KHFLOAT	=	00000082				LST\$K_L_P_PAGE	=	0000003C		
FLGSV_STOIMF	=	00000012				KIDENT	=	0000006A				LST\$K_TITLE_SIZ	=	00000028		
FLGSV_SYM2COL	=	0000002A				KIF	=	00000046				MAC\$AL_PRMHSHTB	00000000	RG	04	
FLGSV_TOCFLG	=	00000013				KIFF	=	00000048				MAC\$AL_UMCHSHTB	00000000	RG	06	
FLGSV_UPAFLG	=	00000024				KIFT	=	00000049				MAC\$AL_USYHSHTB	00000000	RG	05	
FLGSV_UPDFIL	=	00000027				KIFTF	=	0000004A				MAC\$AW_ILLMODTB	0000015C	RG	03	
FLGSV_UPMARG	=	00000026				KIIF	=	00000047				MAC\$CRF_OPTIONS	00000153	RG	03	
FLGSV_XCRF	=	0000001F				KINCLUDE	=	0000005F				MAC\$DFT_LIST	00000233	RG	09	
G	=	0000A008				KIRP	=	0000004B				MAC\$D\$PL_ARGS	0000025D	RG	09	
GOALSY	=	0000000A				KIRPC	=	0000004C				MAC\$G_L\$BNAM	0000021D	RG	09	
H	=	00009010				KLIBRARY	=	00000060				MAC\$G_SPLMC_DIR	000000DF	RG	03	
HASHPT	=	000029B5	R	03		KLINK	=	00000085				MAC\$MAC_DEF_END	*****	X	03	
HASHSZ	=	0000007F				KLIST	=	00000061				MAC\$MAC_IN_MAC	*****	X	03	
HASHVL	=	00000008				KLONG	=	0000003C				MAC\$SET_ALL_CHR	*****	X	03	
HYPHEN	=	0000002D				KMACRO	=	00000050				MACTXT	=	0000000D		
ID	=	0000000C				KMCALL	=	00000051				MAC_SUBSYS	=	0000007D		
INPSK_BUF\$IZ	=	000003E8				KMDELETE	=	00000054				MB	=	00000041		
INSYMC	=	00000004				KMEXIT	=	00000052				MD	=	0000C048		
INSYMP	=	0000025D	R	09		KNARG	=	00000063				MF	=	00008044		
INSYTM	=	0000025D	R	09		KNCHR	=	00000064				MG	=	0000A048		
INT\$K_BUF\$IZ	=	000013F4				KNCROS	=	0000007A				MH	=	00009050		
INT\$K_BUFWRN	=	00001390				KNLIST	=	00000062				ML	=	00000044		
KADDRESS	=	00000037				KNTYPE	=	00000074				MO	=	00000050		
KALIGN	=	0000005A				KOCTA	=	00000083				MQ	=	00000048		
KASCIC	=	00000033				KODD	=	0000005C				MSK_LH	=	FFFF0000		
KASCID	=	00000078				KOPDEF	=	00000075				MSK_RH	=	0000FFFF		
KASCII	=	00000034				KPACKED	=	00000036				MW	=	00000042		
KASCIZ	=	00000035				KPAGE	=	00000065				O	=	00000010		
KBLKA	=	0000003F				KPRINT	=	00000072				OBJ\$K_BUF\$IZ	=	00000200		
KBLKB	=	00000040				KPSECT	=	00000066				OPD\$M_ADDR	=	00000000		
KBLKD	=	00000041				KQUAD	=	0000003D				OPD\$M_BB	=	000000A1		
KBLKF	=	0C000042				KREF1	=	0000006D				OPD\$M_BW	=	000000C2		
KBLKG	=	0000007E				KREF16	=	00000084				OPD\$M_D_FLOAT	=	0000C000		
KBLKH	=	0000007F				KREF2	=	0000006E				OPD\$M_FCOAT	=	00008000		
KBLKL	=	00000043				KREF4	=	0000006F				OPD\$M_G_FLOAT	=	0000A000		
KBLKO	=	00000080				KREF8	=	00000070				OPD\$M_H_FLOAT	=	00009000		
KBLKQ	=	00000044				KREPT	=	0000004D				OPD\$M_MODE	=	000003E0		
KBLKW	=	00000045				KRESTORE	=	00000067				OPD\$M_MODIFY	=	00000040		
KBYTE	=	00000038				KSAVE	=	00000068				OPD\$M_NOT_32F	=	00007000		
KCROSS	=	00000079				KSBTTL	=	0000006B				OPD\$M_READ	=	00000020		
KDEBUG	=	00000055				KSGNB	=	0000007C				OPD\$M_VIELD	=	00000080		
KDFLT	=	0000007B				KSGNW	=	0000007D				OPD\$M_WRITE	=	00000060		
KDOUBLE	=	00000039				KTITLE	=	00000069				OPD\$S_MODE	=	00000005		
KDSABL	=	00000056				KVECTOR	=	00000059				OPD\$S_SIZE	=	00000005		
KENABL	=	00000057				KWARN	=	00000073				OPD\$V_D_FLOAT	=	0000000E		
KEND	=	00000076				KWEAK	=	0000006C				OPD\$V_FCOAT	=	0000000F		
KENDC	=	0000004E				KWORD	=	0000003E				OPD\$V_G_FLOAT	=	0000000D		
KENDM	=	00000053				KXFER	=	00000077				OPD\$V_H_FLOAT	=	0000000C		
KENDR	=	0000004F				L	=	00000004				OPD\$V_MODE	=	00000005		
KENTRY	=	00000058				LST\$G_CONDITION	00000004	RG	09			OPD\$V_SIZE	=	00000000		
KERROR	=	00000071				LST\$G_DIRLIST	=	00000045	RG	09		OPF\$M_LASTOPR	=	00002000		
KEVEN	=	0000005B				LST\$G_LONGNAMES	000000B5	RG	09			OPF\$M_OPTEXP	=	00001000		
KEXTRN	=	0000005D				LST\$G_MACROBIN	00000045	RG	09			OPF\$V_LASTOPR	=	0000000D		
KFIELD	=	0000003A				LST\$G_MACROCALL	00000024	RG	09			OPF\$V_OPTEXP	=	0000000C		
KFLOAT	=	0000003B				LST\$G_MACRODEF	00000014	RG	09			PSC\$B_NAME	00000004			

PSC\$B_SEG	0000000C			RDX\$V_DECIMAL	= 00000002		\$S21	= 0000259F	R	03
PSC\$B_UNUSED	0000000B			RDX\$V_DOUBLE	= 00000005		\$S22	= 000023F1	R	03
PSC\$G_OPTIONS	0000014B	RG	08	RDX\$V_FLOAT	= 00000004		\$S23	= 0000223A	R	03
PSC\$K_BLKSI	00000013			RDX\$V_GFLOAT	= 00000006		\$S24	= 0000224E	R	03
PSC\$K_NO_OPTNS	= 0000000A			RDX\$V_HEX	= 00000003		\$S25	= 000015DD	R	03
PSC\$L_CURLOC	0000000F			RDX\$V_HFLOAT	= 00000007		\$S26	= 000024A3	R	03
PSC\$L_LINK	00000000			RDX\$V_OCTAL	= 00000001		\$S27	= 0000236F	R	03
PSC\$L_MAXLGTH	00000005			REG\$_PC	= 0000000F		\$S28	= 00002967	R	03
PSC\$M_ABS	= FFFFFFFF7			RF	= 00008024		\$S29	= 000026BB	R	03
PSC\$M_ALIGNFLG	= 00004000			RG	= 0000A028		\$S3	= 00001449	R	03
PSC\$M_ALLOPTNS	= 000003FF			RH	= 00009030		\$S30	= 000019EC	R	03
PSC\$M_BYTE	= 00004000			RL	= 00000024		\$S31	= 00002226	R	03
PSC\$M_CON	= FFFFFFFFB			RO	= 00000030		\$S32	= 00001179	R	03
PSC\$M_DEFAULT	= 000001C8			RQ	= 00000028		\$S33	= 0000158A	R	03
PSC\$M_EXE	= 000000C0			RRREG	= 00000031		\$S34	= 00002781	R	03
PSC\$M_GBL	= 00000010			RW	= 00000022		\$S35	= 0000293C	R	03
PSC\$M_LCL	= FFFFFFFEF			\$S0	= 000021E1	R	\$S36	= 0000250D	R	03
PSC\$M_LIB	= 00000002			\$S1	= 00002104	R	\$S37	= 00001C76	R	03
PSC\$M_LONG	= 00004800			\$S10	= 000025F6	R	\$S38	= 0000267E	R	03
PSC\$M_NOEXE	= FFFFFFFBF			\$S100	= 000025B5	R	\$S39	= 00001A4E	R	03
PSC\$M_NOPIC	= FFFFFFFFE			\$S101	= 00000B70	R	\$S4	= 00001935	R	03
PSC\$M_NORD	= FFFFFFF7F			\$S102	= 000024F9	R	\$S40	= 00002553	R	03
PSC\$M_NOSHR	= FFFFFFFDF			\$S103	= 00002347	R	\$S41	= 000013D3	R	03
PSC\$M_NOVEC	= FFFFFFFDF			\$S104	= 00001D0B	R	\$S42	= 000024CB	R	03
PSC\$M_NOWRT	= FFFFFFFEF			\$S105	= 00001DCB	R	\$S43	= 00001FE8	R	03
PSC\$M_OVR	= 00000004			\$S106	= 00001DE2	R	\$S44	= 0000208C	R	03
PSC\$M_PAGE	= 00006400			\$S107	= 0000297A	R	\$S45	= 0000211A	R	03
PSC\$M_PIC	= 00000001			\$S108	= 00001D3B	R	\$S46	= 00002276	R	03
PSC\$M_QUAD	= 00004C00			\$S109	= 00001DFB	R	\$S47	= 00001823	R	03
PSC\$M_RD	= 00000080			\$S11	= 000011B9	R	\$S48	= 000023DD	R	03
PSC\$M_REL	= 00000008			\$S110	= 0000286C	R	\$S49	= 00001839	R	03
PSC\$M_SHR	= 00000020			\$S111	= 000029A0	R	\$S5	= 00001EE6	R	03
PSC\$M_USR	= FFFFFFFFD			\$S112	= 000023B0	R	\$S50	= 000024E4	R	03
PSC\$M_VEC	= 00000200			\$S113	= 0000202A	R	\$S51	= 000027D1	R	03
PSC\$M_WORD	= 00004400			\$S114	= 000020CE	R	\$S52	= 000025E4	R	03
PSC\$M_WRT	= 00000180			\$S115	= 00001FFF	R	\$S53	= 000014F9	R	03
PSC\$S_ALIGNMENT	= 00000004			\$S116	= 000028F1	R	\$S54	= 00002950	R	03
PSC\$V_ALIGNFLG	= 0000000E			\$S117	= 000007DD	R	\$S55	= 00000DD1	R	03
PSC\$V_ALIGNMENT	= 0000000A			\$S118	= 00002859	R	\$S56	= 000010F8	R	03
PSC\$V_EXE	= 00000006			\$S12	= 00001217	R	\$S57	= 00001C88	R	03
PSC\$V_GBL	= 00000004			\$S120	= 00002844	R	\$S58	= 00001B66	R	03
PSC\$V_LIB	= 00000001			\$S121	= 000012D2	R	\$S59	= 000026CF	R	03
PSC\$V_OVR	= 00000002			\$S122	= 00001232	R	\$S6	= 00001FA2	R	03
PSC\$V_PIC	= 00000000			\$S123	= 00001EB8	R	\$S60	= 00002212	R	03
PSC\$V_RD	= 00000007			\$S124	= 00001F74	R	\$S61	= 000028DE	R	03
PSC\$V_REL	= 00000003			\$S125	= 0000180D	R	\$S62	= 0000289E	R	03
PSC\$V_SHR	= 00000005			\$S126	= 000021F8	R	\$S63	= 00001920	R	03
PSC\$V_VEC	= 00000009			\$S127	= 000021CA	R	\$S64	= 00002564	R	03
PSC\$V_WRT	= 00000008			\$S13	= 00000D72	R	\$S65	= 000027F7	R	03
PSC\$W_FLAG	00000009			\$S14	= 00001BFB	R	\$S66	= 0000280A	R	03
PSC\$W_OPTIONS	0000000D			\$S15	= 00002925	R	\$S67	= 00000F0C	R	03
PSECT\$BLANK	00000027	RG	07	\$S16	= 0000258D	R	\$S68	= 0000281D	R	03
PSECT\$MAIN	0000000A	RG	07	\$S17	= 000020EB	R	\$S69	= 000024B7	R	03
Q	= 00000008			\$S18	= 00001FB8	R	\$S7	= 0000290B	R	03
RB	= 00000021			\$S19	= 00002734	R	\$S70	= 000028CA	R	03
RD	= 0000C028			\$S2	= 00000CCD	R	\$S71	= 000020B9	R	03
RDX\$V_BINARY	= 00000000			\$S20	= 00001053	R	\$S72	= 00002830	R	03

MAC\$SYMTAB
Symbol table

PERMANENT SYMBOL TABLE

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S\$73 = 00001DB2 R
 S\$74 = 00001B4C R
 S\$75 = 00002631 R
 S\$76 = 000015C7 R
 S\$77 = 0000242B R
 S\$78 = 0000229C R
 S\$79 = 00002188 R
 S\$8 = 000029B5 R
 S\$80 = 000027A9 R
 S\$81 = 00001725 R
 S\$82 = 000022C2 R
 S\$83 = 000022D5 R
 S\$84 = 000022E8 R
 S\$85 = 00000C88 R
 S\$86 = 0000219E R
 S\$87 = 0000243E R
 S\$88 = 000022FB R
 S\$89 = 00001F5D R
 S\$9 = 0000276D R
 S\$90 = 00002882 R
 S\$91 = 0000298D R
 S\$92 = 000025C8 R
 S\$93 = 00002796 R
 S\$94 = 000027E4 R
 S\$95 = 00002691 R
 S\$96 = 000011D1 R
 S\$97 = 00002644 R
 S\$98 = 000028B1 R
 S\$99 = 0000266A R
 SEMI = 0000003B
 SHF_LH = 00000010
 SIGN_BIT = 80000000
 STBSK_PG_MISS = 0000000A
 SYMSB_NAME = 00000004
 SYMSB_SEG = 0000000C
 SYMSB_TOKEN = 0000000B
 SYMSK_BLKSI2 = 0000000D
 SYMSK_MAXLEN = 0000001F
 SYMSK_TWOCOL = 00000010
 SYMSL_LINK = 00000000
 SYMSL_VAL = 00000005
 SYMSM_ABS = 00000010
 SYMSM_ASN = 00000100
 SYMSM_CRFO = 00002000
 SYMSM_DEBUG = 00000020
 SYMSM_DEF = 00000001
 SYMSM_DELMAC = 00000200
 SYMSM_EPT = 00000200
 SYMSM_EXTRN = 00000008
 SYMSM_GLOBL = 00000004
 SYMSM_LOCAL = 00000040
 SYMSM_ODBG = 00000400
 SYMSM_REF = 00000080
 SYMSM_RELPSECT = 00000800
 SYMSM_SUPR = 00004000
 SYMSM_WEAK = 00000002
 SYMSM_XCRF = 00001000

03 SYMSV_ABS = 00000004
 03 SYMSV_ASN = 00000008
 03 SYMSV_CRFO = 0000000D
 03 SYMSV_DEBUG = 00000005
 03 SYMSV_DEF = 00000000
 03 SYMSV_DELMAC = 00000009
 03 SYMSV_EPT = 00000009
 03 SYMSV_EXTRN = 00000003
 03 SYMSV_GLOBL = 00000002
 03 SYMSV_LOCAL = 00000006
 03 SYMSV_ODBG = 0000000A
 03 SYMSV_REF = 00000007
 03 SYMSV_RELPSECT = 0000000B
 03 SYMSV_SUPR = 0000000E
 03 SYMSV_WEAK = 00000001
 03 SYMSV_XCRF = 0000000C
 03 SYMSW_FLAG = 00000009
 03 SYMLN = 00000007
 03 TAB = 00000009
 03 VB = 00000081
 03 VD = 0000C088
 03 VF = 00008084
 03 VG = 0000A088
 03 VH = 00009090
 03 VL = 00000084
 03 VO = 00000090
 03 VQ = 00000088
 03 VW = 00000082
 03 W = 00000002
 03 WB = 00000061
 03 WD = 0000C068
 03 WF = 00008064
 03 WG = 0000A068
 03 WH = 00009070
 03 WL = 00000064
 03 WO = 00000070
 03 WQ = 00000068
 03 WW = 00000062
 03 X = 00000010
 03 X1 = 00000033
 03 X2 = 00080000
 03 XXX = 00000080
 03 Z = 0000ABFF

+-----+
! Psect synopsis !
+-----+

PSECT name	Allocation	PSECT No.	Attributes
. ABS .	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
. BLANK .	00000000 (0.)	01 (1.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC BYTE
\$AB\$\$	00000013 (19.)	02 (2.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
MAC\$PRMSYMTAB	000029C2 (10690.)	03 (3.)	NOPIC USR CON REL GBL NOSHR NOEXE RD NOWRT NOVEC LONG
MAC\$PHASHTAB	00000200 (512.)	04 (4.)	NOPIC USR CON REL GBL NOSHR NOEXE RD NOWRT NOVEC LONG
MAC\$USERHASHTAB	00000200 (512.)	05 (5.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC LONG
MAC\$USRMACROHSH	00000200 (512.)	06 (6.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC LONG
MAC\$PSECT TAB	0000003A (58.)	07 (7.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC LONG
MAC\$PSC OPTIONS	00000154 (340.)	08 (8.)	NOPIC USR CON REL GBL NOSHR NOEXE RD NOWRT NOVEC LONG
MAC\$ENBDSABLTAB	00000266 (614.)	09 (9.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC LONG

+-----+
! Performance indicators !
+-----+

Phase	Page faults	CPU Time	Elapsed Time
Initialization	30	00:00:00.02	00:00:00.61
Command processing	103	00:00:00.37	00:00:03.70
Pass 1	1074	00:00:43.56	00:02:57.01
Symbol table sort	0	00:00:00.58	00:00:02.36
Pass 2	266	00:00:09.77	00:00:39.14
Symbol table output	64	00:00:00.35	00:00:01.70
Psect synopsis output	4	00:00:00.03	00:00:00.38
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	1543	00:00:54.68	00:03:44.90

The working set limit was 2550 pages.
456772 bytes (893 pages) of virtual memory were used to buffer the intermediate code.
There were 40 pages of symbol table space allocated to hold 784 non-local and 0 local symbols.
1092 source lines were read in Pass 1, producing 103 object records in Pass 2.
14 pages of virtual memory were used to define 9 macros.

+-----+
! Macro library statistics !
+-----+

Macro library name	Macros defined
_\$255\$DUA28:[MACRO.OBJ]MACRO.MLB;1	9
_\$255\$DUA28:[SYSLIB]STARLET.MLB;2	0
TOTALS (all libraries)	9

518 GETS were required to define 9 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:SYMTAB/OBJ=OBJ\$:SYMTAB MSRC\$:SYMTAB/UPDATE=(ENH\$:SYMTAB)+LIB\$:MACRO/LIB

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